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THE

MINERAL RESOURCES

AND

Manufacturing Facilities

OF THE CITY OF

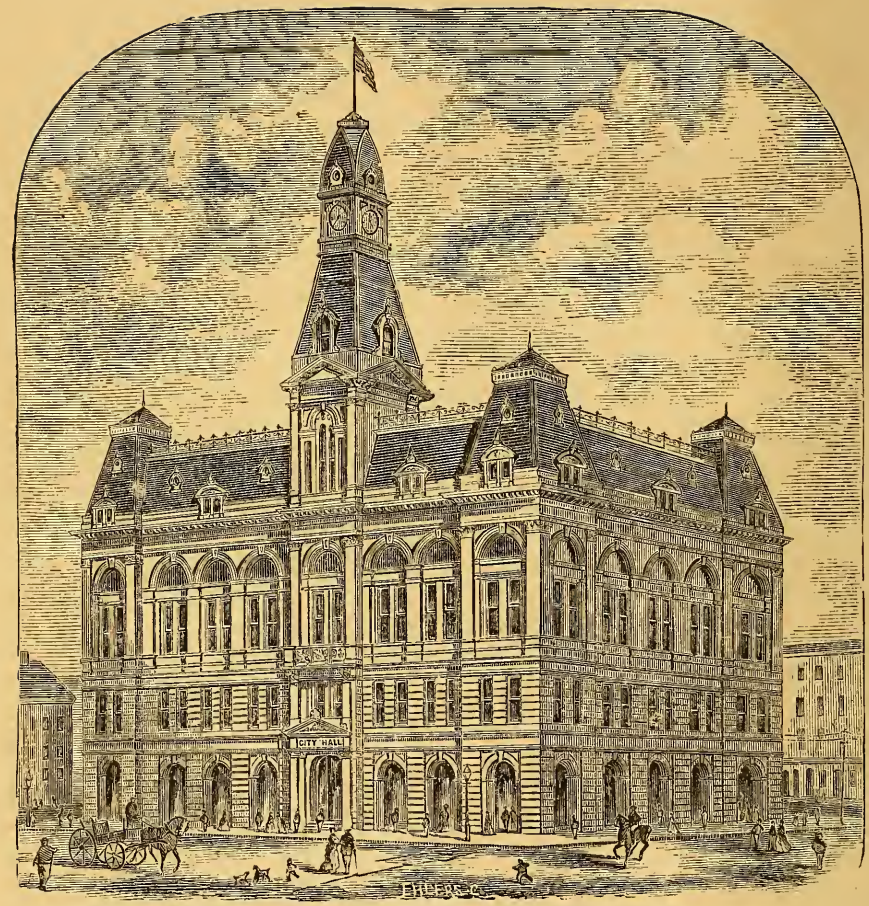
CUMBERLAND, MD.

WITH MAP AND TABLES SHOWING CONNECTIONS BY RAIL AND WATER WITH ALL THE IMPORTANT CENTRES OF TRADE.

COMPILED BY
C. J. ORRICK,
With an Article on Iron by A. F. WENDT, E. M.

PUBLISHED BY
The Board of Trade of the City of Cumberland.
January, 1875.

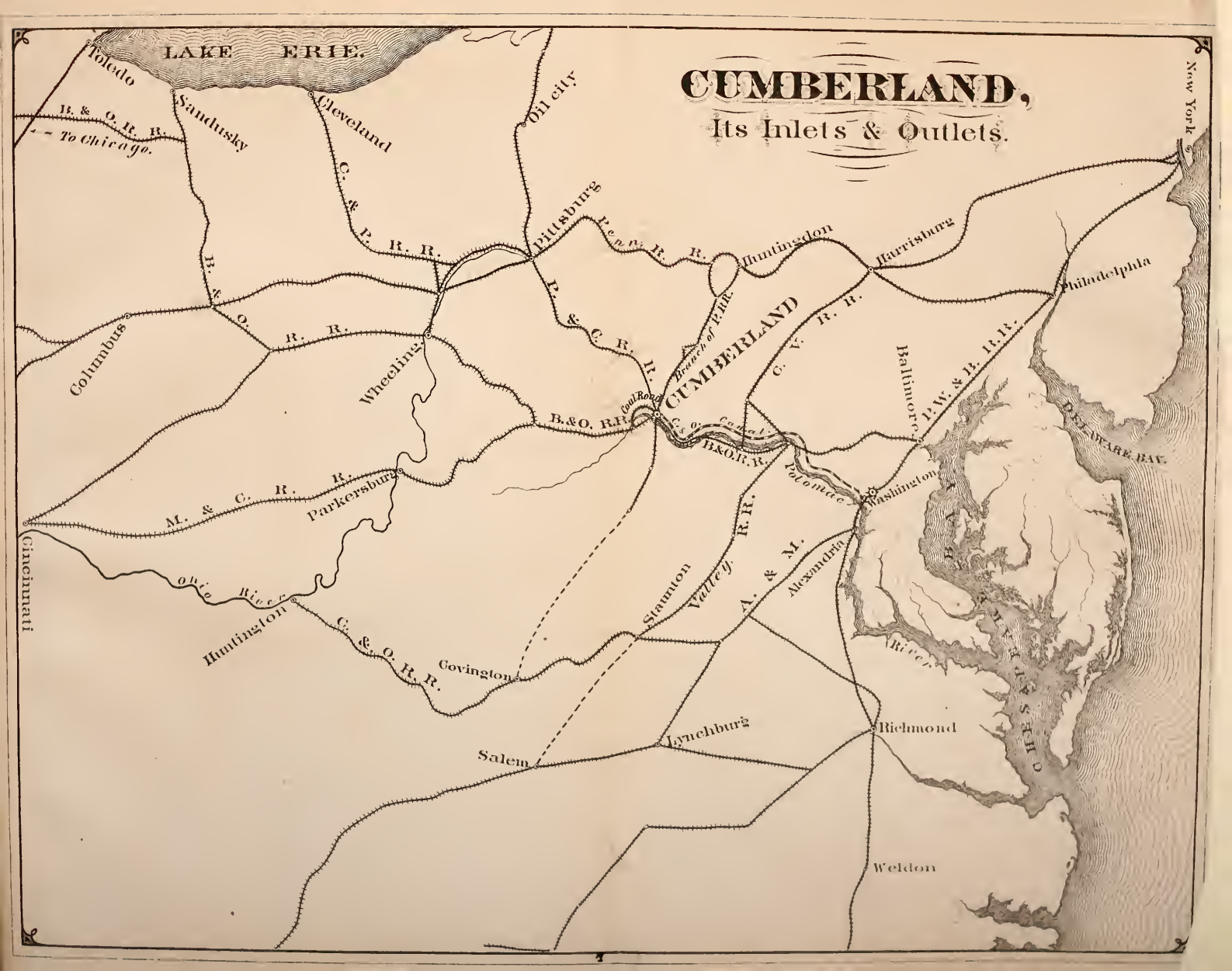
WILL H. LOWDERMILK, STEAM PRINTER,
No. 45 Baltimore Street,
CUMBERLAND, MD.



CITY HALL AND ACADEMY OF MUSIC:

CUMBERLAND, MD.

AUDITORIUM FINISHED IN MODERN STYLE, AND WILL SEAT FIFTEEN HUNDRED PERSONS.


CUMBERLAND,
Its Inlets & Outlets.
LAKE ERIE.
Toledo
Sandusky
Cleveland
Oil city
B. & O. R. R.
- - To Chicago.
C. & P. R. R.
Pittsburg
Penn. R. R.
Huntingdon
Harrisburg
New York
Philadelphia
B. & O. R. R.
Columbus
Wheeling
P. & C. R. R.
Branch of P.R.R.
CUMBERLAND
C. V. R. R.
Baltimore
P.W. & B. R.R.
DELAWARE BAY.
Coal Road
B.&O. R.R.
C. & O. Canal
B&O.R.R.
Potomac
Washington
M. & C. R. R.
Parkersburg
Cincinnati
Ohio River
Alexandria
A. & M.
Valley R.R.
Staunton
Huntington
C. & O. R. R.
Covington
Lynchburg
Salem
Richmond
Weldon

PENNSYLVANIA.
MASON & DIXON'S LINE
National
Pittsburg & Connellsville R.R.
Penna. RR.
Fossil Ore.
Ellerslie
Wills Creek.
Corrigansville
Turnpike.
Flintstone.
Gilpintown.
(Large Tannery)
Mt. Savage
Frostburg
MARYLAND
REGION
Furnace
Bowery.
Clarysville
CUMBERLAND
N.
Savage River.
GREAT SAVAGE MTN.
Hematite Ore.
CUMBERLAND COAL
George's Creek.
Penna. R.R.
Lonaconing
Cumberland &
Ore.
Chesapeake and Ohio Canal.
River.
Baltimore and Ohio R.R.
DANS MTN.
Potomac
Fossil Ore.
Patterson Creek
Frankfort
Westernport
WEST VIRGINIA
South Branch.
South Branch R.R.
Piedmont
Keyser

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INTRODUCTION.

The present is a period of sharp competition in all branches of manufacture; and in the future the competition is likely to be even sharper than now, and only such operators whose works are in the most favorable localities can hope to reap a profit upon their investments. Believing that many manufacturers have their works now located in towns and cities where fuel and raw materials are too high, and their working expenses too heavy, to allow them successfully to withstand this competition; and that Cumberland and the vicinity afford unusual facilities for the successful conduct of many lines of manufacture, we have published this short account of Cumberland, its mineral resources, and manufacturing facilities, with the hope of attracting capital and business ability to develop our mineral wealth and utilize our manufacturing facilities. In our coal fields we have an abundant supply of the best fuel in the States, (this is saying a good deal, but our assertion is substantiated by the tests and experiments which will be found in the table under the caption "Coal,") and at lower prices than the same quality of fuel can be obtained elsewhere.[4] And, as will be seen from the article on iron, that iron can be manufactured here at comparatively low cost. With these two important points, cheap fuel and cheap iron assured, we think we may claim that Cumberland offers unusual facilities for the successful establishment of all classes of iron manufacture, wrought or cast, hollow ware castings, stoves, etc., cast and wrought iron pipe, steam engines and boilers, saw mill gearing and portable saw mills and machinery generally, sheet and bar iron, bridge iron, besides nails, bolts, nuts, washers, and all species of heavy hardware.

With the best quality of steel, (from the Cumberland Steel Works) at very low prices, manufactured in the city, saw and tool works would be assured successes. We argue, if a manufactory located in the New England States, using CUMBERLAND COAL, *with all the added costs of handling and transportation,* and their raw materials at much greater first cost than they can be obtained here, with shipping facilities no better than those possessed by this city, can be profitably conducted, the profits will be greater if the same manufactory were located here.

With car wheel iron and heavy timber of prime quality, at the low costs (quoted elsewhere,) we believe Cumberland to be a most desirable point for conducting car works. Spokes and hubs can be made cheaply here, and a ready market found for them as fast as manufactured.

With a pure sand in abundance, fuel at the low cost of $1.30 per ton, and fire brick of the very best quality at low prices, we confidently predict the successful establishment of glass works in this vicinity. Besides these leading interests many lines of manufacture could be successfully established to meet the special demands of the local trade of the city and vicinity. A cotton factory is now in operation within the city limits; and a boot and shoe factory, woolen mills, paper mills, stove factory, etc., if established here could find a market for their goods in the local trade of the vicinity.

Situation and Early History.

CUMBERLAND, the county seat of Allegany County, Maryland, is situated at the confluence of Wills Creek with the North Branch of the Potomac river; in a picturesque amphitheatre formed by the Wills and Nobly ranges of the great Allegany Mountains. It is the largest and most important city in Western Maryland. It is the Western terminus of the Chesapeake and Ohio Canal; and the principal shipping point, both by Canal and Rail, for the celebrated "Cumberland" coal. The Pittsburgh and Connellsville branch of the Baltimore and Ohio Railroad joins the main stem at Cumberland.

The settlement of this city dates back to the old colonial times, when the Ohio Company built here a trading post and stockade, being then known as the "Wills Creek Post." Here Washington, then the young colonial Colonel, had his headquarters for a time, on his march to Great Meadows. Here later, the ill-fated Braddock, on his march against the French at Fort Duquesne, now Pittsburgh, built a fort which he called "Fort Cumberland," and which he designed as a point of supply for his army on their march.

From a trading post and frontier town, as the civilization of the States advanced Westward, it became the county town of a quiet farming country. Subsequently the "National Turnpike," designed as a great highway of travel between the National Capital and the West, was built, Cumberland being the point of departure over the mountains.

Then it became the terminus of the Baltimore and Ohio Railroad, which carried its freight and passengers from Baltimore to Cumberland, whence Westward the stage-coach and road wagon were the only conveyances.

This now great trunk line has expanded, until by its branches and connections our city is in direct communication with all the great cities of this country. With New York, with Baltimore, Philadelphia, Chicago, Cincinnati, and St. Louis; with the great Lakes, at Sandusky, with the great inland rivers, at Wheeling and Parkersburg, and with ocean commerce at Baltimore. By the Connellsville route, running from Cumberland, this city is placed in close connection with Pittsburgh, and by the Bedford and Huntingdon Branch of the Pennsylvania Railroad, with Philadelphia and New York, by that route also, and with the important cities and towns of Pennsylvania.

The city is on the outer edge of the great Coal Basin which goes by its name, connected with it by the lines of the Cumberland and Pennsylvania Railroad, and the Cumberland Coal and Iron Company's Railroad.

The population of Cumberland according to the census of 1870 was 8,056; in 1873, 11,300. As the city has grown rapidly since that time it is probably safe to estimate its present population at about 13,000.

It is an incorporated city, governed by a Mayor and Board of Councilmen; with a regularly organized police force. The city is lighted by gas, and supplied with water from the Potomac river, by the "Holly system of fire protection and water supply."

It has three Banking institutions, two National and one Saving's Bank. The city supports two daily and two weekly papers, published here.

Situated at an elevation of from six to seven hundred feet above tide level, the city is free from miasma, and its climate healthy and pleasant.

There are sixteen Churches, viz: One English Lutheran, two German Lutheran, three churches and one chapel belonging to the Methodist denomination, and one chapel belonging to the colored conference of the same denomination, one Baptist, (white) and one ditto (colored) congregation, two Catholic churches, one Presbyterian, one Protestant Episcopal, and one German Reformed church, and one Jewish Synagogue. Several of the church buildings of our city are very handsome, and by their picturesque

situation and architectural beauties add greatly to the appearance of our "Mountain City."

Good educational facilities are provided by the public school system of the State, supplemented by the County Academy, (endowed), Carmelite College, St. Edward's Academy, conducted by the Sisters of Mercy, of the Roman Catholic church; a parochial school connected with the German Catholic church of St. Peter and Paul's, and several excellent private schools both male and female.

Hotel accommodations are furnished by the large and elegant Queen City Hotel, owned and controlled by the Baltimore and Ohio Railroad Company; and by three other first class hotels, and several other small hotels and eating houses.

The manufacturing interests of the city and vicinity are represented by the Steel Rail Mills and Merchant Bar Mills of the Baltimore and Ohio Railroad; the Bowery Blast Furnace of the Cumberland Coal and Iron Company; the works of the Union Mining and Manufacturing Company; two Iron Foundries and Machine shops; the Mills of the Cumberland Cast Steel Works; the Cumberland Cotton Factory; Cement Mills; three large Steam Tanneries (in the city) and two others in the vicinity; the Firebrick Works (mentioned elsewhere); the Car and Locomotive works, and Machine shops of the Cumberland and Pennsylvania Railroad Company, (located at Mt. Savage, on the line of the road West of the city), and several large Flour Mills; the Steam Furniture Works of K. H. Butler, (the largest furniture works in the State,) and numerous other smaller manufactories, planing and saw mills, sash and door factories, &c., &c.

The Cumberland Coal Fields.

THIS now celebrated Coal Field lies west of the city of Cumberland, in a basin formed by the Great Savage Mountain on the North-west and the Dan's Mountain on the South-east, and running North-east and South-west from Pennsylvania State Line, through Allegany county, into Mineral county, West Virginia. The basin is about five miles wide between the two ranges and about twenty miles long. The floor of the basin slopes from either end upwards to Frostburg, where it attains its greatest altitude, from 2,000 to 2,100 feet above mean tide.

The Southern slope of the basin is drained by George's Creek, flowing South-west from Frostburg and emptying into the Potomac river. The Northern slope, by Jenning's Run, flowing North-west into Will's Creek. The aggregate depth of the coal formation here is 1,100 feet, its base being the Millstone Grit. Capping the summits of Savage and Dan's mountains, it extends down their sides into the valley, where it dips below the surface.

The principal coal veins are, first, the "Big Vein," fourteen feet of coal, lying 1,860 feet above tide. This is the vein from which most of the coal is now mined. It underlies the surface of the valley at Frostburg and Borden Shaft, but southward, down the George's Creek, water has cut away that portion of the measure lying in the lowest part of the valley and with it this vein (which here must have been very near the surface) leaving the higher parts only of the vein standing in the hills thus formed on either side of the water course. Second, the "Four Foot Vein," which lies about 800 feet below the "Fourteen Foot Vein." This vein is below water in the higher part of the basin; but appears about sixty feet above at Barton, and lies above the level from that point south-

ward, down the George's Creek. This vein has been opened by the Piedmont Coal and Iron Company, and proves to be equal in quality to the Big Vein, and in the southern portion of the basin lies in such a way as to be easily mined. Lastly, the "Six Foot Vein," which lies 160 feet below the "Four Foot Vein," and is above water level in the lower part of the valley only. This vein is now successfully mined at the New Reading opening, at Westernport. These two lower veins, though smaller in size than the "Big Vein," have a much greater acreage, as but little of either vein has been cut away by erosion. At present the abundant supply contained in the large vein is so easy of access and can be so cheaply mined, that these smaller veins have not received the share of attention which they eventually will. Several new openings other than those mentioned are now being made in these smaller veins, with very encouraging prospects.

The total acreage of coal land in this field is 44,132. Of this, 17,300 acres contain the large "Fourteen Foot Vein," and of course all contain the two smaller veins. Besides these, which are the working veins, there are numerous other small veins, throughout the entire depth of the coal measure; these veins are from six inches to three feet in thickness; they have never received any attention from mining companies or experts, and we are not able to say what may be their actual value in workable coal. The coal of this field is so well and favorably known by consumers and dealers generally, that we deem any discussion as to its merits unnecessary. For the information, however, of any one to whom the appearance and properties of this coal is not familiar, we will say that it is a "free burning bituminous coal, containing on an average 75 per cent. of fixed carbon. It is free from injurious impurities and with very little slate or earthy particles. At the end of this article will be found a table copied from Senate Document, No. 336, of Twenty-eighth Congress, first session, which is the report of a Committee of Naval Officers and Engineers which was appointed by the United States Government, to test, by actual experiment, the relative value for forge and steam generating purposes of all the different kinds of coal found in this country and in England. This committee in their report, rate Cumberland Coal (in general average) to be the best coal for steam

generating purposes in the market, and superior for forge purposes also. Under equal weights the Cumberland Coal surpasses the Anthracite, in evaporative power, by about 2.3 per cent.; under equal bulk by 1.4 per cent. It surpasses the foreign bituminous coals 20 per cent. comparing equal weights, and 26 per cent. comparing equal bulk. It is now used by manufacturers and transportation companies generally throughout the Eastern States. For coking qualities, etc., we refer the reader to the article on Iron.

From 1842 to 1874 (inclusive) 26,338,681 tons of this coal have been mined and shipped. The demand is steadily increasing and will necessitate an increase of mining and shipping facilities. Several of the coal companies, now in operation, have made new openings and inclines during the past summer and are now prepared to nearly double their previous shipments the coming season. The supply is still abundant; the lower veins being almost untouched, and of the upper vein there are about 12,057 acres still uncut.

In addition to the abundant supply of this valuable mineral contained in the Cumberland Coal Basin proper, a large field of valuable coal (which closely resembles the Cumberland Coal) has been recently opened in an adjoining county of Pennsylvania. This coal will be put on the cars of the Pittsburgh branch of the Baltimore & Ohio Railroad thirty-five miles west of Cumberland. The coal of this region closely resembles the "Cumberland," being like it a bituminous rich in carbon, and quite free from injurious substances, and earthy impurities. From this field the industries of Cumberland are assured of a valuable supplimental supply.

Cumberland is connected with the Cumberland Coal Field by the Cumberland & Pennsylvania Railroad, which runs from Cumberland to Piedmont, through the coal basin, and by the Eckhart Mines Branch, which runs from Cumberland to Eckhart and other mines on the eastern edge of the coal basin.

WHOLESALE PRICES OF COAL IN CUMBERLAND MARKET.

JANUARY, 1875.

Fine	$1.30–35 per ton.
Run of Mine	1.60–75 " "
Lump	2.75 " "

RETAIL PRICES OF COAL IN CUMBERLAND MARKET.

PRICES OF COAL DELIVERED TO ALL PARTS OF THE CITY.

Run of Mine.....$2.00 per ton
Lump ..... 3.00 " "
Fine..... 1.50 " "

TABLE OF RELATIVE VALUES OF FOREIGN AND DOMESTIC COALS FOR STEAM GENERATING AND FORGE PURPOSES.

COMPILED FROM SENATE DOC. NO. 386, 28TH CONGRESS, 1ST SESSION.

DESIGNATION OF COAL.	Per cent. of fixed Carbon.	Pounds of steam to one of coal from initial temperature.	Pounds of steam furnished by 1 cubic foot of coal.	Steam from 212° from 1 foot of combustible matter.	REDUCING POWER. Parts of lead from litharge by 1 part of coal.	FORGE QUALITY. Number of links of chain cable 1⅛ inches, by 60lbs coal.	Total waste in ashes and clinker to 100 parts.
Beaver Meadows Anthracite.....	91.47	8.76	556.1	10.592	33.29	.....	6.74
Peach Mountain do	89.02	8.96	545.7	10.871	33.49	.....	6.97
Lackawana do	87.74	8.56	477.7	10.764	33.53	.....	8.93
Lehigh do	89.15	7.73	494.0	9.626	28.92	.....	7.22
Lykens Valley do	83.84	8.43	459.6	10.788	32.60	.....	12.24
Cumberland Coal, average of 5 samples.	**75.05**	**8.77**	**530.1**	**11.624**	**33.60**	**20**	**9.94**
Pennsylvania Bituminous.....	74.24	8.31	472.8	11.171	31.18	14	16.36
do do	73.11	8.64	515.9	10.956	32.54	15⅝	11.20
do Cambria Co.....	69.37	8.04	486.9	10.239	31.46	.....	9.75
Virginia Bituminous.....	53.01	7.30	448.5	9.741	29.03	14	14 83
Pittsburgh do	54.93	7.03	384·1	8.942	28.89	.....	8.25
Indiana "Block" coal.....	58.44	6.31	348.8	7.734	26.53	11	5.12
Pictou, N. S.....	60.74	7.45	417.9	9.648	26 69	11	12.06
Liverpool.....	54.90	6.95	375.4	8.255	27.88	13	5.04
Newcastle.....	57.00	7.68	439.6	9.178	27.55	15	5.68
Scotch.....	48.81	6.14	353.8	7.719	27 00	10	10.10

Iron and Iron Ore.

BY AUTHUR F. WENDT, E. M.,
MEMBER AMERICAN INSTITUTE MINING ENGINEERS,
Superintendent Cumberland Coal and Iron Company.

THE recent rapid decline in the value of all our Iron Manufactures has led to the blowing out of nearly one-half of the furnaces in the United States, and the partial stoppage of many Mills and Factories consuming their product.

Stimulated by a heavy tariff Iron Works have heretofore been established in localities totally unfit for the cheap production of iron; thus eventually leading the capital of the country into unremunerative channels, to the detriment of the better situated works.

It behooves our Iron Masters to grapple with the present difficulties, and by producing Manufactured Iron as cheap and cheaper than either England or the Continent, find a ready market beyond the limits of the United States.

As before intimated, the situation of the works has an important bearing upon the cost of the product, and I shall endeavor to prove by the following lines that Cumberland has the natural advantages necessary for the economical production of Pig and Wrought Iron, and that capital only is needed to make it a successful iron centre.

Cumberland lies in the midst of the great Fossil or Clinton Ore belt, extending from Wisconsin through Canada, New York, sweeping thence in a Southwestern course through Pennsylvania,

Maryland, Virginia, and East Tennessee into Georgia. In the immediate vicinity of the city the beds are tilted on their edge, are poor in iron and rich in lime, and consequently small and hard, and can not be profitably worked. Upon entering Bedford County, Pennsylvania, their character changes, with the accompanying country rock. The veins flanking the sides of Wills and Tussey's Mountains, are soft, and they dip at steep angles, from 70° to 90°, and are profitably worked. They can be opened above water level by cross-cuts through soft slate; on reaching the vein drifts will be driven in the ore and overhand slopes one hundred feet in height, cheaply and conveniently mined. The ore on the West side of Wills Mountain can be transported by inclines to the Bedford Division of the Pennsylvania Railroad, involving a minimum of cost for transportation. The main or "Soft Fossil" vein varies from one to three feet in thickness, averaging about two feet; the hard fossil from 6 to 12 inches thick, separated from the soft by a foot or two of sandstone, and can often be mined to advantage with the first. At the Cumberland mine, owned and operated by the Cumberland Coal and Iron Company the ore has the following average composition:

Metallic Iron	41.34
Silica	15.10
Water	6.92
Phosphorus	.51

Like all the fossil of this region, it contains only a trace of sulphur, and nearly sufficient lime to flux the silica in the ore. Further North the ore is harder and contains more silica and less iron, as the following analysis of a sample taken from the poorest portion of the vein will show:

Iron	32.47
Silica	30.50
Phosphorus	.42

These ores if mined with proper care can be relied on to yield 40 per cent. in the furnace, and will cost $3.80 per ton delivered in Cumberland. Large bodies of the same fossil ores along Tussey's Mountain and the neighboring ranges are at present unavailable, owing to their distance from the railroad. Near Bedford, Pennsylvania, on the Dunnings Creek Branch Railroad, are heavy

deposits of fossil ore, which can be quarried by stripping from four to ten feet of soft slate and soil. The dip of these beds is very light, varying from 5° to 10°; they contain from three to four feet of ore interlaid with slate and sandstone, making a total thickness of six to eight feet, and have the following composition:

Metallic Iron	31.75
Silica	8.85
Phosphorus	.37

Although poor in iron the ores contain so large a percentage of lime that a furnace will drive very fast on this stock and make as much iron as if using the 40 per cent. ores. The cost of one ton delivered in Cumberland will be about $3.50, or $10.50 per ton of metal against $9.50 of the 40 per cent. fossil. To partially set off this increased cost there will be a considerable saving of limestone.

The "Big Fossil Vein," also known as the "Levant" or "Block Ore," and found in the Clinton measures, about 1,000 feet below the small fossil just described, and usually within 200 feet of the Medina Sandstone, has not been opened at any point South of Tatesville, in Bedford County, where it is worked by the Kemble Coal and Iron Company.

This ore crops out near the Narrows above Cumberland, and South of the City crosses the Potomac and skirts Knobly mountain, following the course of the Baltimore and Ohio Railroad as far as Keyser City.

Strictly speaking the deposit here assumes the character of a ferruginous sandstone as the following assays demonstrate:

Sample of Top three feet ore,	Metallic Iron.....17·06
Sample of Centre four feet ore,	Metallic Iron.....18.88—Silica 68.89.
Sample of Bottom three feet ore,	Metallic Iron.....18.46

At a point South of Cumberland, surface specimens of the ore assayed 27.77 Iron, 0.33 Phosphorus, and 54.20 Silica. The lower beds are not exposed, but are known to be of superior quality, and will yield about 30 per cent in the furnace; its remarkable thickness and the low cost at which the ore can be quarried and shipped renders it of economical importance. The ore can be laid down in Cumberland inside of $1.80 per ton. A half-and-half mixture of this and the limestone fossil of Bedford will contain 31 per cent. of Metallic Iron, 28 per cent. of Silica, and 36 per cent. of carbonate of lime and other bases. A ton of the mixture costs $2.65, or

only $8.48 to the ton of iron, and can be worked in varying proportions with the rich hematites and magnetites of Virginia and Lake Superior, of which more hereafter.

Following the Clinton measures South of Cumberland into Virginia the next point of importance is in the vicinity of Moorefield; the small fossil veins here attain a thickness of nearly three feet, and yield over 43 per cent. of iron, and are remarkably free from Silica. Their occurrence and position is a counterpart of the ores North of Cumberland, and hence offer similar inducements for mining. Large tracts of ore overlap the tops of the mountains, leaving only a few feet of soil as cover. The outcrops of the workable fossil veins have been traced Southwest through Hardy, Pendleton and Highland Counties to the Chesapeake and Ohio Railroad, and everywhere present the same natural advantages; insuring a cheap and plentiful supply of these ores for furnaces situated in Cumberland. In Morgan County, Va., and in the vicinity of the Great Cacapon river, not quite 40 miles East of Cumberland, are local deposits of hematites, yielding from 35 to 40 per cent. of iron, and containing scarcely a trace of phosphorus. The ore requires washing and can be shipped by Canal and delivered at $4.25 per ton. A Charcoal furnace has been running on the ore of one of these deposits for many years, and produces excellent iron.

The second great range of ores, important to Cumberland, is found in a course parallel with the fossil along the outcrop of the Lower Silurian Limestones forming the base of the Great North Mountain and the Shenandoah Valley. The ores are hematites and limonites, practically free from sulphur and phosphorus and occur, in an almost continuous deposit from a point twenty miles South of Winchester, Frederick County, through Shenandoah and Rockingham Counties, crossing the Chesapeake and Ohio Railroad near Staunton, Augusta County, and turning thence in a Southwestern direction into Tennessee.

The deposits are in many instances above water level, and can be mined by open cut and transported to the valley by inclines and tram-roads. An average sample from Frederick County assayed:

42.00 per cent. Metallic Iron.
.20 per cent. Phosphorus.

A number of samples from the vicinity of Staunton contained 10 to 15 per cent. of moisture, no phosphorus, traces of sulphur and the following yield of Metallic Iron:

	No. 1.	No. 2.	No. 3.	No. 4.
Metallic Iron	54.33	51.39	62.26	53.72
Silica	11.13	8.99	2 23	3.51

These ores can be mined, and royalty paid, for $2.35 per ton, and will not cost over $5.50 per ton delivered in Cumberland.

Of the thirty-five Charcoal Furnaces blowing in Virginia, more than twenty-five are supplied from this wonderful belt of ore, and all are favorably known for the excellence of their product. Worked alone the ore makes a strong foundry or mill iron, suitable for every purpose; calcined and used with fossil it will make a soft foundry which compares favorably for strength, and the amount of scrap that can be added, with the renowned Scotch pig. The ores can be transported by the Valley Railroad, a branch of the Baltimore and Ohio, direct to Cumberland, or shipped by canal from Harper's Ferry.

In the vicinity of Fredericktown, Md., and in proximity to the Railroad, are fine deposits of hematite, similar in appearance to the ores found near Baltimore, from which the well known car wheel iron is smelted. The following is an analysis of a sample of "Lump Ore:"

Metallic Iron	52.32
Silica	7.08
Phosphorus	1.78

A single deposit has been opened to the depth of nearly one hundred feet, and exhibits their general character. The ore is found in irregular masses, often weighing many tons, imbedded in a soft clay and gravel, and will not require the labor of experienced miners in its extraction, thus materially reducing the cost, which will be about $4.50 per ton in Cumberland. The water collecting in the mine requires pumping, and can be profitably employed in washing fine ore.

Twenty miles East of Frederick a vein of slightly magnetic specular ore, containing considerable manganese has been opened. The walls are well defined, showing a width of eight feet. The country rock is slate, and dips almost vertical, comformably with the vein. An average sample assayed 33.07 per cent. of iron and

traces of sulphur and phosphorus; hence the ore is adapted to the manufacture of Bessemer, Martin, or Crucible Steel. Its cost in Cumberland will not exceed $5.00 per ton.

Prolonging the course of the vein into Virginia, it follows the Eastern slope of the Blue Ridge, traversing Fauquier, Rappahanock, Madison, Green and Albemarle Counties, where valuable deposits of rich titaniferous magnetites have recently attracted attention. Allowing $3.00 per ton for mining, (which is a liberal estimate) a 50 per cent. ore, free from phosphorus, can be delivered at the furnace bank in Cumberland for $6.20 per ton.

Last, but not least, Lake Superior ores can be shipped via Cleveland or Sandusky, and the Pittsburgh and Connellsville, or Baltimore and Ohio Railroads, and delivered at an advance of $2.00 per ton on their cost in Pittsburgh. Mixed with the first mentioned magnetic ores, the percentage of titanium can be reduced in the stock, so as not to interfere with the regular working of the furnaces, and the cost of the ore per ton of iron will then be below Pittsburgh rates.

Besides these inexhaustible sources of supply of rich ores, the large and ever increasing shipments of coal from Cumberland to tidewater, and thence to all ports on the Atlantic, offer ready means of cheap return freights for North Carolina magnetites, and the pure African hematites. The toll from Georgetown, by Canal, is 46 cents per gross ton, and the total cost of transportation will not exceed $1.30. African ores, containing 62 per cent. of metallic iron, and worth $10 per ton at tidewater, will therefore cost $11.30 in Cumberland.

A detailed account of the three great parallel zones of Fossil, Hematite, and Magnetic Iron Ores, contained in the folds of the Alleghanies being impracticable within the limits of this pamphlet, I have in the foregoing description, aimed to present a general view of the vast mineral wealth available to, and waiting its development by, the energy of the Cumberland manufacturer, and the unusual facilities for the transportation of the finer ores, enjoyed by this central situation.

An abundance of limestone is found in and near Cumberland. At one point a stone of the Helderberg formation, containing only 2.5 per cent. of Silica, rises in a bold cliff one hundred feet in

height, presenting every advantage for quarrying. At its base runs the Baltimore and Ohio Railroad, and a few hundred feet further, the Potomac empties into the Chesapeake and Ohio Canal basin. Limestone would hardly cost 80 cents per ton at this point. Niagara limestone of fine quality, and unlimited quantity, is found a few miles South, near the Potomac.

The far-famed Cumberland, or George's Creek, Coal is too well known to require any special notice; containing, as it does, over 75 per cent. fixed carbon, a ton of coke can be made in modern Belgian ovens with an expenditure of 1⅓ tons of coal. Hence works owning ovens can produce coke for $2.80 per ton, and if they likewise are owners of coal lands, for $2.40 per ton.

A pair of modern Furnaces, at least eighteen feet in the bosh, and seventy feet high, built with all labor-saving improvements, ample hot blasts, blowing engines, calcining kilns, and coke ovens, could manufacture iron at the following cost.

A cold short iron, containing 1.3 per cent. phosphorus, made exclusively from 40 per cent. Fossil:

2½ tons Ore at $3.80	$9.50
1 ton Limestone	80
1½ tons Coke at $2.80	4.20
Labor and salaries	3.50
Materials and general expenses	1.00
	$19.00

A neutral iron containing 0.7 per cent. of Phosphorus, and some Titanium, smelted from a 40 per cent. stock of equal parts of the Levant and Limestone fossil mixture, and titaniferous Magnetite; which stock will yield sufficient cinder to prevent any difficulty from the refractory character of the Titanium Ore:

2½ tons Ore at $4.32½	$10.80
1¼ tons Stone at 80 cents	1.00
1½ tons Coke at $2.80	4.20
Labor	3.00
Materials	1.00
	$20.00

Estimating the average cost of North Mountain and Fredericktown hematites, at $5.20 per ton, and their yield at only 45 per cent., and further, allowing the make of the furnaces to increase 8 per

cent. on the calcined, and richer stock, the cost of a strong mill iron containing, according to the ores used, from 0.10 per cent., to 1.71 per cent. Phosphorus, will be as follows:

2¼ tons Ore at $5.20	$11.70
1 1-5 tons Stone at 80 cents	96
1½ tons Coke at $2.80	4.20
Labor	2.75
Materials	92
	$20.53

Bessemer, soft foundry, or a red short forge iron, made from various proportions of picked and calcined Virginia hematites, limonites, and titaniferous magnetites, worth an average of $5.60 per ton:

2 tons Ore at $5.60	$11.20
1 ton Stone at 80cts	80
1½ tons Coke at $2.80	4.20
Labor	3.00
Materials	1.00
	$20.20

Iron made exclusively from African ores:

1⅝ tons Ore at $11.50	$18.36
⅝ tons Stone at 80cts	50
1¼ tons Coke at $2.80	3.50
Labor	2.10
Materials	60
	$25.06

The preceding estimates are based on the actual work done at a furnace near Cumberland, and represent the *maximum* cost of the iron in every instance; proving conclusively that Cumberland can manufacture iron from $3.00 to $4.00 per ton cheaper than Pittsburgh, where the cost of production, from a mixture of mill cinder and lake ore is about $24.00 at present. With a superior coal no more expensive, the excellent Mount Savage and Savage Mountain fire-brick from five to six dollars per thousand less costly, and labor a trifle lower than in Pittsburgh, wrought iron can be manufactured at a proportional reduction in cost.

Estimating the loss of metal from pig to the finished product at 15 per cent., the necessary fuel consumed in puddling and heating at two tons, and the fettling at 225lbs of ore per net ton of

merchant iron, its cost to a company owning mines and furnace will be approximately as follows:

Pig Iron at $20.00 per ton.....	$21.00
Coal.....	3.50
Fettling.....	1.00
Labor and superintendence.....	16.00
Materials and repairs.....	2.00
	$43.50

Leaving a margin of $10.00 per ton at present prices.

Recognizing the advantages possessed by Cumberland, the Baltimore & Ohio Railroad Company, in 1870, built a large rail-mill and have since added a bar mill, which, by efficient management, have proved a valuable addition to the revenues of the corporation. This mill is at present reaping the benefits of being the only consumer of pig iron in the neighborhood.

Mills and furnaces once established a bright future awaits Cumberland; situated on a great through route extending from Chicago to Baltimore, with numerous connections to the South and North, and with the canal as a highway to the Atlantic, an essential element of successful manufacturing, viz: "Cheap Transportation" is assured. An establishment located in Cumberland, manufacturing light T rail, punched strap iron, merchant bars, boiler plate and sheet iron, with the double advantage of low first cost and light freights, will find a large market for its goods in the Cumberland and Broad Top mining regions, and would soon monopolize the Eastern, Southern and South American trade. The same is true to a still greater degree of factories of spikes, nails, brads, tacks, rivets, bolts, washers, nuts, and heavy hardware generally, as well as of bridge and roof, wrought iron pipe, boiler and locomotive building. Encouraged by cheap foundry iron, manufacturers of stoves, cast iron pipe, portable and stationary engines, and every class of machinery, will locate their works in Cumberland and enter the ranks of the consumer.

Since Bessemer iron can be produced as cheap here as elsewhere, steel can be manufactured with equal economy. Estimating the value of the iron at $30.00 per ton, the cost of a ton of steel rails

produced by the American plant of two five-ton converters will be as follows:

Pig Iron	$35.00
Wages	10.00
Fuel	5.50
Spiegel Eisen	5.00
Repairs and materials	2.00
	$57.00

At seven per cent. the interest on capital invested added to the sinking fund would be nearly $10.00 per ton, or a total of $67.50, which, even at present prices of steel rails, would leave a margin of two dollars and a half per ton. Crucible steel works containing a Siemens and blister furnace, producers, etc., are now successfully operated in Cumberland, producing a superior article at less cost than in Pittsburgh; thus enabling manufacturers of springs, shovel, hoe, cultivator and plow steel, files, rasps, axes, and every description of edge tools, to establish themselves profitably.

Thus it will be seen that nature has bountifully supplied Cumberland with those gifts which will, in the near future, give it the importance to which, by its resources and position, it is entitled. The manufactures of iron and steel are yet in their infancy, but not many years will elapse ere what now is but a country town, will hear the hum and stir of busy workers, and will see the tall stacks of many mills belching forth their clouds of smoke, speaking in fiery tongues of the energy and prosperity of their founders. And then in truth the Cumberland manufacturer may point with pride to his native town, and call it "The Queen City."

NOTE.—The analyses in the foregoing article were made by Prof. C. F. Chandler, Ph. D. School of Mines, New York, and J. Blodgett Britton, Philadelphia.

Fire Clay.

THERE are eight veins of pure Fire Clay in the coal measures of the Cumberland Coal Field, having an aggregate thickness of 53 feet 7 inches. This clay has been and is extensively worked into fire brick. There are, also, deposits of Fire Clay in the adjoining Counties of Pennsylvania, some of which have been recently opened. The clays are all of excellent quality; the "Mt. Savage Firebrick," and "Savage Mountain Firebrick," both of which brands are made from the lowest vein of the measures, are well known among Iron Masters and Smelters all over the Union, and are pronounced the best Firebrick for furnace purposes, made in this country.

There are at present five Firebrick and retort manufactories in this section. The works of the Union Mining and Manufacturing Company, located at Mt. Savage; the Savage Mountain Firebrick Manufacturing Company, located at Frostburg; the Globe Fireclay Manufacturing Company, at Bridgeport; the Savage Firebrick Manufacturing Company, at Keystone Junction, on the Pittsburgh, Washington and Baltimore Railroad; and the works of Reese, Lemon & Co., located at Ellerslie. From these works the iron furnaces and mills, which may be established in this section, can always be supplied with a superior article, at less cost than in any other manufacturing centre. There are also, several deposits of fine potter's clay, several of which have not yet been used. There is now only one Stoneware Pottery in this section; this is well established, and doing a steady, though comparatively small business; the ware made there is fine and of good quality. There is an excellent opening for a "Drain Pipe and Tyle works" here; clay well suited for that line of manufacture is abundant, and custom for the articles manufactured is assured from the beginning.

Beds of clay suitable for brick making are found in the low lands, both within, and immediately adjoining the city limits.

Limestone and Cement.

THE "Lower Helderberg," and "Water Lime" formations, both crop out within the city limits. The Limestone of the former series occurs near to the surface, in the North-eastern side of the city, along the foot of a hill; West of Wills Creek it forms (with the Oriskany sandstone) the hill upon which the Western half of the city is built. There are several points where this stone is easy of access, and where it can be quarried to advantage, the quarries on the Western side of the city being easily accessable, both by rail and water. The stone is of fair quality, average samples analysing less than 3 per cent. of Silica. The "Water Lime," or "Cement" rock, crops out in the Northern part of the city, on the Western bank of the Wills Creek. It has been quarried at this point for over thirty years, by the Cumberland Hydraulic Cement Manufacturing Company, whose Mills, etc., are located on the banks of the creek near the quarries.

The Hydraulic Cement manufactured here, and sold under the name of "Lynn Cement" and "Cumberland Cement," has been favorably known to contractors and builders for over thirty years, and is highly commended by such Engineers as Benjamin H. Latrobe, C. P. Manning, and Maj. Henry Brewerton. This Cement is noted for the energy of its action, and will bear a greater admixture of sand than any other natural Cement now in use.

We append below a table showing the weight in pounds sustained by Cement Mortars, made into prisms two inches square, by eight inches long, and broken on supports four inches apart, by pressure in the middle. The Cements were kept in sea water after the first twenty-four hours, and were 320 days old when subjected to the test. The result of this severe test was in every way favorable to the "Cumberland Cement." As will be seen from the table, it is second only to the celebrated Portland (artificial) Cement of English manufacture, and superior to all other natural Cements.

TABLE OF TRANSVERSE STRENGTH OF CEMENT MORTARS. BREAKING WEIGHT IN POUNDS.

J. C. Trautwine.

DESIGNATION OF CEMENT.	Pure Cement.	Cement 1 Sand 1
	Lbs.	Lbs.
English Portland, (artificial)	1536	1260
Cumberland, Maryland	**954**	**920**
Newark and Rosendale	841	560
Delafield & Baxter's Rosendale	836	692
Hoffman, Rosendale	849	607
Lawrence, Rosendale	777	.....
Round Top, Maryland	.....	720
Utica, Illinois	732	756
Shepherdstown, Virginia	747	618
Akron, New York	764	651
Kingston and Rosendale	720	556
Sandusky, Ohio	554	464
James River, Virginia	.....	623
Roman Cement, Scotland, probably injured	553	.....
The following were broken when 1 year old:		
Lawrenceville Manufacturing Co. Rosendale	.....	910
Sandusky, Ohio	802	.....
Kensington, Connecticut	954	709
Lawrence Cement Co., Rosendale-Hoffman brand	875	91

—*Trautwine's "Hand Book."*

Sandstone.

THERE are several varieties of Sandstone, suitable for building purposes, quarried within and around the city limits. Of these a yellow sandstone (Oriskany) and a pure white sandstone, (Medina) are the cheapest and most valuable. In addition to these, and other sandstones, suitable for building purposes, there are several other deposits which deserve especial mention from their adaptability to the manufacture of glass.

The first, in point of size and extent, is a stratum of Medina Sandstone, which forms the walls of an immense natural gorge through Wills Mountain, at the northern boundary of the city. This gorge is about one quarter of a mile in length, and the walls of Medina Sandstone rise almost perpendicularly, on either side, to the height of over five hundred feet. The Wills Creek flows through this gorge, and the tracks of the Cumberland and Pennsylvania and Pittsburgh and Connellsville Railroads are laid through it, at the base of the easterly wall.

The stone of this stratum is a rather fine grained white sandstone, breaking easily under the hammer. It was found, by analysis, to contain over ninety eight per cent. of Silica, the impurity found in it is sesquioxide of iron, (forty-two one-hundredths of one per cent.) Prof. C. F. Chandler is of the opinion that this stone is suitable for the manufacture of glass of the finest quality. Hundreds of tons of this stone, quarried by the force of nature in the centuries past, now lie at the base of the cliff, on either side of the gorge. The stone can be loaded directly upon the cars on the East side of the gorge, or upon wagons on the West side.

The stone can be conveniently crushed at the quarry and handled and transported to any part of the city at a minimum of

cost. We append a copy of the analysis, and accompanying letter from Prof. C. F. Chandler:

LABORATORY SCHOOL OF MINES, COLUMBIA COLLEGE,
NEW YORK. March 9, 1875.

Sir: The sample of Medina Sandstone submitted to me for examination contains:

Silica.....98.35 per cent.
Sesquioxide of Iron*..... .42 per cent.

*Equivalent to 0.29 per cent. of Metallic Iron. "Bottle glass, which is dark green, or black, contains from 3.8 to 6.2 per cent. of oxide of iron. Plate glass contains from 0.2 to 1.9 per cent. of oxide of iron. Ordinary white glass contains from 0.3 to 3.9 per cent. of oxide of iron. Flint glass contains from 0.4 to 0.8 per cent. of oxide of iron. Assuming that the glass to be made of your sandstone will contain 75 per cent of the sandstone, the glass would contain less than one-third of one per cent. of oxide of iron, which is too little to give it any objectionable color, or practically to color it at all. I am satisfied, therefore, that the *sandstone is in every respect, well fitted for the manufacture of glass of the best quality.*"

Signed, C. F. CHANDLER, Ph. D.
Prof. Analytical and Applied Chemistry.

A large deposit of sandstone is found East of the city, on the line of the Chesapeake and Ohio Canal. The stone is a soft white sandstone, lying sufficiently near to the surface to be easily mined, and, from its proximity to the Canal, can be transported to the city easily and cheaply. We have no analysis of the stone; but practical tests have found it to be suitable for use in the manufacture of glass. It will cost, delivered here on the wharf, crushed, washed and dried, ready for use, about $4.00 per ton.

We call the attention of glass manufacturers to these deposits of excellent glass sand. To the inducement of prime sand, we add those of cheap fuel, firebrick of best quality at less cost than the same quality can be had in Pittsburgh or elsewhere; a large local trade and excellent shipping facilities. We may add that owing to our nearness to the seaboard, imported chemicals, and crucible stock can be transported at low cost.

Timber.

IN addition to the mineral wealth stored beneath their surface, the hills and mountains of this region bear a large and valuable supply of timber. Every railroad westward from Cumberland has opened to this market a valuable

tract of Timber Land; that, on the Baltimore & Ohio Railroad may be stated at 36 miles in length, (so much of it at least being practicable for the Cumberland market); that on the Pittsburgh & Connellsville Railroad at 18 miles in length, while the Cumberland & Pennsylvania affords shipping facilities for the large timber district lying between the two first named roads. In addition to these three tracts, there is a large tract eastward of Cumberland, from which the cut timber and logs are brought to this market by water, via the Chesapeake & Ohio Canal. The lumber business has long been an important feature in the industries of this section. It has been confined entirely to two channels, cutting up the timber in the rough, and the manufacture of shooks, (or Hogshead staves) and hoops for exportation to Cuba, and cooper stuff generally. An immense quantity of timber is also used in boat-building, which is an important feature in the manufactures of this city. A comparatively small quantity is also used in the manufacture of furniture.

White and Yellow Pine, Hemlock and Oak are the most abundant woods; considerable quantities of Hickory, Maple, Chestnut, Ash and Black Walnut are also sawed out, with some Poplar and Cherry.

Pine, Hemlock and Oak timber of any size required can be obtained at comparatively low prices. The supply of the other woods is not so large, but sufficient to meet the demands of any manufacturing business likely to be established here.

In addition to the lumber of this immediate vicinity, Poplar of excellent quality can be brought by rail from the large poplar forests on the Northwestern Virginia Branch of the Baltimore & Ohio Railroad at low cost. We give below cost of timber in the Cumberland market at present writing:

Oak, Heavy (prime quality)	$20 per M.
Yellow Pine, Heavy, (25ft long & upwards)	25 " "
do do do under 25ft	20 " "
do do Light, choice	20 " "
Walnut, best	35 " "
do ordinary	30 " "
Ash, best	30 " "
" common	25 " "
Poplar, clear	20 " "
" common	16 " "
White Pine	16 " "

Above are prices of choice lumber such as is suitable for car-building, boat building, furniture, etc. Small and common stock suitable for handles, (shovel, rake, etc.) agricultural implements and tool stuff, spokes and hubs, etc., can be had at lower figures.

Railroad Connections and Shipping Facilities.

BESIDES the unusual richness of mineral resources, Cumberland possesses extensive shipping facilities, as in the following article we aim to show, briefly as may be. Its position near the centre of the main line of the Baltimore & Ohio Railroad; 204 miles from river navigation, at Parkersburg or Wheeling, and 178 miles from tide water at Baltimore, insures it equal shipping advantages for either Eastern or Western trade. It has direct connection via Baltimore & Ohio and Marietta & Cincinnati Railroads (Branch of Baltimore & Ohio) to Cincinnati, thence via Ohio & Mississippi Railroad to St. Louis, via Louisville Short Line to Louisville, Kentucky, and via Cincinnati, Lafayette & Chicago Railroad to Indianapolis; with Chicago, via Baltimore & Ohio R. R., Chicago Division. With the navigation on the great lakes at Sandusky, via Baltimore & Ohio R.R. (Lake Erie Division,) at Cleveland via Cleveland & Pittsburgh and Pittsburgh & Connellsville Railroads. With Philadelphia and New York either by rail, via Baltimore, or by rail to Baltimore, thence by water. Shipments to, and from New England States may be made in the same way, either all rail or by outside line from Baltimore. By the Bedford & Huntingdon Branch of the Pennsylvania Railroad, we have railway connections with Philadelphia and New York, and all points of importance in Central and Eastern Pennsylvania. By the Pittsburgh & Connellsville Railroad with Pittsburgh and the oil regions. Via Baltimore & Ohio and Potomac & Strasburg or Valley Railroad to Strasburg and Staunton, thence to Lynch-

burg, Danville, Salem, Knoxville, Charlotte and other points of importance in Virginia, Tennessee, and North and South Carolina. Via Alexandria we have all rail connections with Fredericksburg, Richmond, Va., and Wilmington, N. C. Through the Chesapeake & Ohio Canal we have connections with tide water at Georgetown and Alexandria, thence by regular lines of steamboats to Fredericksburg, Norfolk, Richmond, and other points on Chesapeake Bay and its tributaries, and by regular lines of ocean vessels, both sail and steam, with New York, Boston, Providence, New Haven, Portsmouth, Portland and other points on the New England coast, and with Wilmington, Charleston, Savannah, and the South Atlantic coast. From the foregoing it will be seen that this city has direct railway connections with all points of importance in the Western States, and both water and rail with the principal seaports and centers of trade in the Atlantic States, and excellent shipping facilities for a South American trade via Baltimore or Alexandria. Through these numerous connections, the manufacturer located here, can ship his goods cheaply and promptly, to all the great centers of trade, and through immense consuming districts.

In this connection we publish below a letter from Hon. Wm. Keyser, 2nd Vice President of the Baltimore & Ohio Railroad, which shows the animus of this great trunk line towards our city:

BALTIMORE & OHIO RAILROAD,
VICE-PRESIDENT'S OFFICE,
BALTIMORE, February 18th, 1875.

GEO. HENDERSON, JR., ESQ.,
CUMBERLAND, MD.

My Dear Sir:

I have your favor of the 4th inst., and am gratified to learn that your citizens are making strong efforts to attract the attention of manufacturers and business men to the advantages possessed by your city.

The many natural advantages possessed by Cumberland, and especially its cheap fuel, should, I think, if properly made known, attract a manufacturing interest, and secure the establishment of important works. The location of your city, at the junction of several important roads, certainly enables you to offer the great inducement of uniformly reasonable rates of transportation.

This Company will gladly do all in its power to foster and encourage the developments you aim at. Very Respectfully,

WM. KEYSER, 2nd Vice President.

Conclusion.

IN conclusion, let us sum up the advantages offered by our city to the manufacturer locating here.

First. The well known and excellent Cumberland Coal, at lowest cost, affording the great desideratum, *cheap fuel.* Secondly. To all branches of iron manufacturers, the abundance of the deposits of iron ore in our vicinity, the practicability of using so many of the best ores in the world at comparatively low cost; and the supply of limestone of good quality, plentiful and at low cost. To the manufacturer of steel hardware, etc., the advantage of good bar steel from first hands. For car and locomotive works, in addition to the advantages of cheap iron and cheap coal, our city can add that of cheap lumber also. For glass works, it offers the advantage of pure sand easily obtained at low cost. To all branches of manufacture it offers the inducement of extensive shipping facilities for both inland and foreign trade. Its proximity to a large and important port of entry (Baltimore), water transportation to all the great ports on the Atlantic coast, and its railway connections over two great trunk lines, all recommend it to the attention of capitalists and manufacturers generally.

Building materials, stone, brick, firebrick, lime, cement, and timber, can be obtained at prices which will compare favorably with those of any other locality. There are many sites suitable for large manufactories in the city and surroundings; convenient to one or more railroads, or to water transportation, or to both. Any information in regard to the mineral resources, etc., etc., will be furnished, on application, by the undersigned

COMMITTEE ON INTERNAL IMPROVEMENTS:

R. D. JOHNSON, GEO. HENDERSON, JR.,
A. WILLISON, J. B. H. CAMPBELL,
C. J. ORRICK, Secretary.

Appendix A.

TABLE OF DISTANCES BY RAIL OR WATER OF THE PRINCIPAL COMMERCIAL CITIES OF THE UNITED STATES FROM CUMBERLAND, MD.

	MILES.
Philadelphia, via Penn. R. R.	290
Philadelphia, " B. & O. R. R.	276
New York " Penn. R. R.	384
New York, " B. & O. R. R.	366
Baltimore, " B. & O. R. R.	178
Washington, " B. & O. R. R. Met. Div.	154
Cincinnati, " B. & O. R. R. and M. & C. R. R.	411
Louisville, " B. & O. R. R. and connections	518
St. Louis, " B. & O. R. R. " "	751
Parkersburg and Ohio River, via B. & O. R. R.	206
Wheeling, and Ohio River, via B. & O. R. R.	201
Columbus, via B. & O. R. R.	335
Georgetown, via Washington	156
Georgetown " Chesapeake & Ohio Canal	184
Sandusky, and lake navigation, via B. & O. R. R.	418
Chicago, via B. & O. R. R.	661
Stanton, Va. " B. & O. R. R.	226
Strasburg, " B. & O. R. R.	151
Harrisburg, " Martinsburg & Cumberland Valley R. R.	172
Pittsburgh, " Pittsburgh & Connellsville R. R.	150
Cleveland, " Pittsburgh & Connellsville & C. & P. R. R.	300
Erie, Pa. " Pittsburgh & Connellsville	298
Wilmington, N. C., via Baltimore, (all rail)	484
Wilmington, " " by water	555
Danville, Va., via Stanton	397
Charlotte, N. C.	538
Lynchburg, Va.	325
Knoxville, Tenn.	659
Charleston, S. C., by water	685

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